

# THE SEASONAL OCCURRENCE OF BIRDS ON THE NEW DELHI RIDGE<sup>1</sup>

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(With six text-figures)

## INTRODUCTION

From July 1971 to June 1974 I was engaged in research on babblers of the genus *Turdoides* in an area of scrub and *Prosopis* woodland adjacent to New Delhi. The area constitutes part of the ridge which runs south from the campus of the University of Delhi, on the west side of the city. Observations were mainly confined to an area about 2 km<sup>2</sup> immediately west of Willingdon Crescent, stretching as far as New Rajinder Nagar. During the course of field work, which included the trapping of nearly one thousand birds with mist nets, a record was kept of species observed each day and, for less common species, the number seen. The study area was visited for 4-10 hours on most days during 106 weeks out of the period specified above and total observation time amounted to about 3000 hours. From this concentrated series of observations on a single locality it was possible to obtain a good impression of seasonal changes in the occurrence of different species.

A number of authors have contributed to our knowledge of the birds of Delhi and information on their status is summarised in the Check List produced in 1967 by the Delhi Bird Watching Society, referred to throughout this paper as "the Check List". Detailed notes on habitats and breeding seasons are given in Major-General Hutson's excellent book *THE BIRDS ABOUT DELHI* (1947). Most

previous information was assembled from casual or intermittent observations made in a variety of different habitats and this has tended to obscure patterns of seasonal variation within a particular habitat. The present paper intends to illustrate such seasonal patterns for birds found in dry deciduous woodland and scrub around Delhi. Comparisons of status will be made with the notes included in the 1967 Check List and with comments in the *HANDBOOK OF THE BIRDS OF INDIA AND PAKISTAN* (Ali & Ripley 1969-74), which is referred to throughout as "the Handbook".

During the course of the study a number of observations were made of species which had not previously been recorded in the Delhi area and details of these observations are given, along with notes on species listed in the Check List as "very uncommon" or "accidental", in a systematic list following the data on seasonal fluctuations. This systematic list includes a few observations made inside the Union Territory of Delhi, but away from the area specified above.

Coverage was not uniform throughout the period of the study and there were only five months during which the observer was present throughout in all three years; February, March, April, August and September. A week was missed in October in each year. November and part of December were missed in 1973 and January was covered only in 1972 and for one week in 1974. The second half of May was missed entirely and only one week of observations were made in June. Mist netting

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was carried out mainly in August-November and a few species were recorded only when trapped by this means.

## RESULTS

To express the seasonal pattern of records for each species Table 1 shows the proportion of weeks in every month during which each species was recorded in the Ridge study area, in relation to the total number of weeks in that month during which the observer was present. Four categories are used; a dash indicates that the species was not recorded at all in that month,  $\times$  indicates that it was recorded in less than half the weeks of observation,  $\times\times$  in half or more of the weeks, and  $\times\times\times$  in all of the weeks of observations in that month. Table 1 includes those species which were recorded more than once in the study area, but not in every week of observations. Table 2 lists species recorded only once, with the month of occurrence, and Table 3 lists common species which were recorded in every week. The number of weeks of observations made in each month are shown at the top of Table 1.

For a few species of passage migrants the number of birds seen in each quarter month during the autumn are illustrated in figures 1-5, to show the extent to which passage is concentrated. Some species could be seen migrating during the day over the study area and the numbers of these and their direction were recorded. Numbers of Drongos *Dicrurus adsimilis* recorded on migration in spring are shown in figure 6, which includes only birds seen flying steadily north or northwest.

The peak period for the passage of most Palaearctic migrants through the Delhi area was the first three weeks of September. Blyth's Reed Warbler *Acrocephalus dumetorum*,

which was recorded in the study area throughout August-October, moults in this part of North India before continuing its migration (Gaston 1976). For the other warblers there was relatively little variation between years, with the peaks for both Crowned leaf-warblers *Phylloscopus occipitalis* (Figure 2) and Greenish Warblers *Phylloscopus trochiloides* (Figure 3), the most numerous species, falling in the first two weeks of September in all three seasons.

Peak passage of Ashy Drongos *Dicrurus leucophaeus* (Figure 4), a summer visitor to the foothills of the NW Himalayas, occurred in the last quarter of September in all three seasons. The peak passage of Rosy Pastors *Sturnus roseus* (Figure 5) was probably missed in 1971, when observations did not begin until the last days of July, but in 1972 there was a clear peak in the first quarter of August. Spring passage of Black Drongos *Dicrurus adsimilis* was observed throughout March and April, with a peak in 1972 and 1973 in the second half of March. Resident birds appeared to arrive in the study area during late February and early March.

The seasonal patterns illustrated by table 1 are summarised in table 4, which shows the proportions of the 167 species recorded in the study area which fell into each status class. It is interesting to compare these figures with those given in the Check List for the entire avifauna of Delhi. When all 322 species are considered 53% are listed as resident, 34% as winter visitors, 3% as summer visitors and 6% as passage migrants.

Differences between the study area and the entire Delhi area may partly reflect deficiencies in the year-round coverage of the larger area, which no doubt resulted in some late migrants being classified in the Check List as winter visitors (*Acrocephalus agricola*,

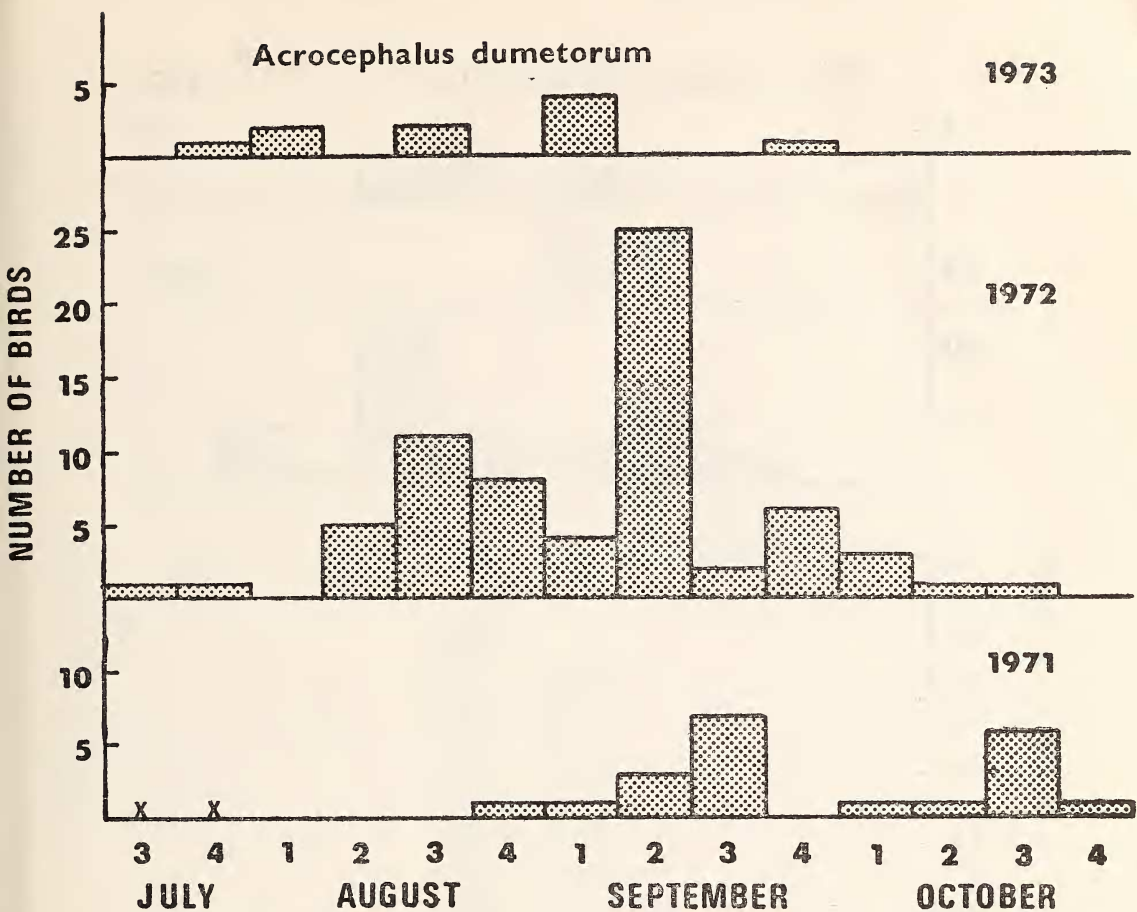


Fig. 1. Number of records of Blyth's Reed Warbler *Acrocephalus dumetorum* in the Ridge study area per  $\frac{1}{4}$  month. X = no observations.

*Phylloscopus affinis*) and some winter visitors being considered passage migrants (*Phylloscopus griseolus*). The bulk of the difference, however, probably reflects real differences between the patterns of seasonal occurrence of birds in the dry woodland and scrub of the ridge and those in other types of habitat in the Delhi area; particularly the moist riverine tract beside the River Yamuna.

Many species that occur only during the summer in the study area can be seen throughout the year in the riverine belt. These included *Butastur teesa*, *Vanellus indicus*, *Hal-*

*cyon smyrnensis*, *Coracias benghalensis*, *Megalaima haemacephala*, *Dicrurus adsimilis*, *Rhiphidura aureola*, *Terpsiphone paradisi*, *Petronia xanthocollis*, *Ploceus philippinus*. The same is true of some species recorded only on passage in the study area; *Acrocephalus stentoreus*, and *Saxicola caprata*. A number of other species recorded in the study area only on passage occur throughout the winter in the riverine belt; *Tringa* spp., *Hirundo rustica*, *Saxicola torquata*, *Anthus hodgsoni*, *A. trivialis*, *Motacilla flava*, *M. alba*. A few such as *Elanus caeruleus* and *Lanius excubitor* are

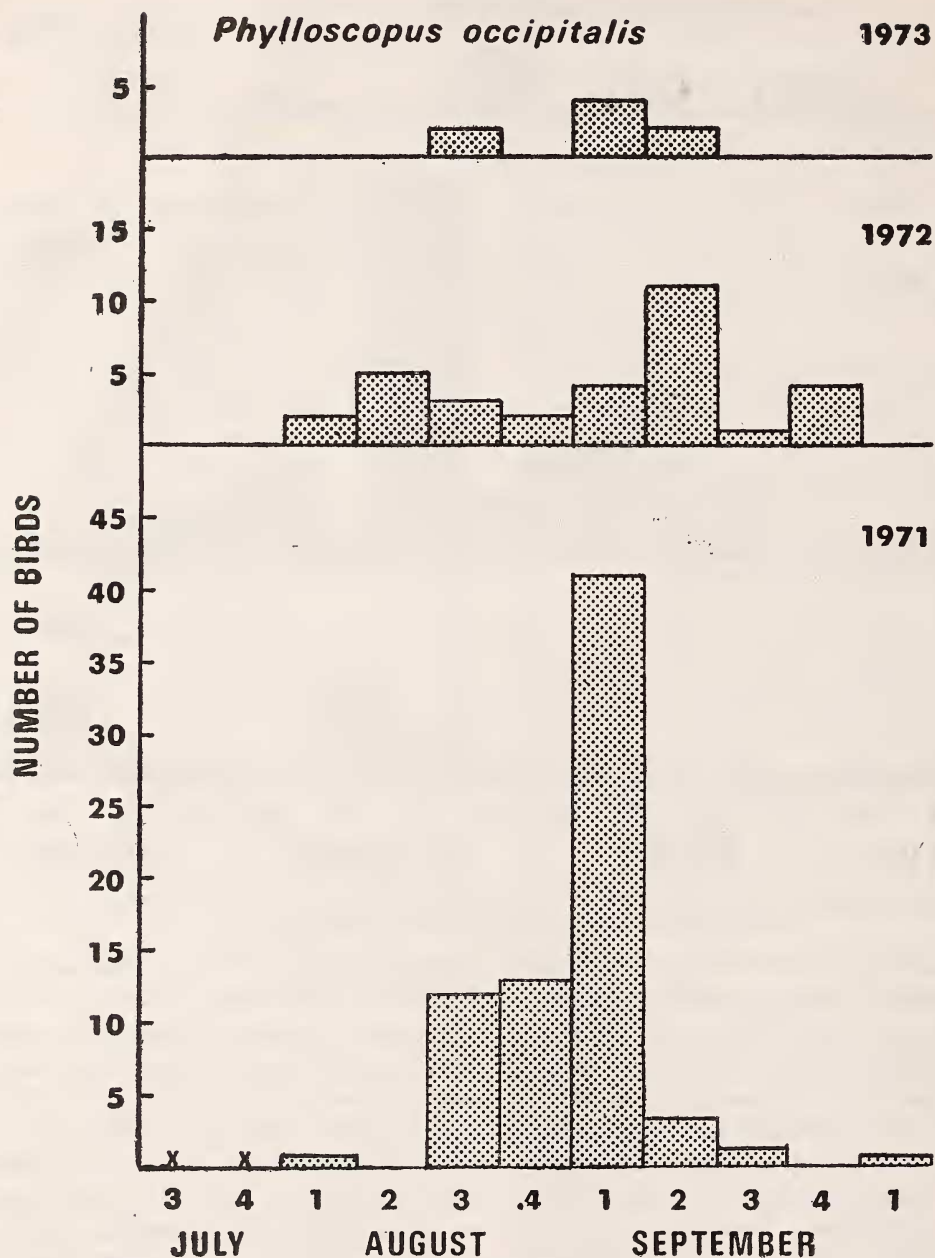


Fig. 2. Numbers of records of Crowned Leaf-warblers *Phylloscopus occipitalis* in the Ridge study area per  $\frac{1}{4}$  month.



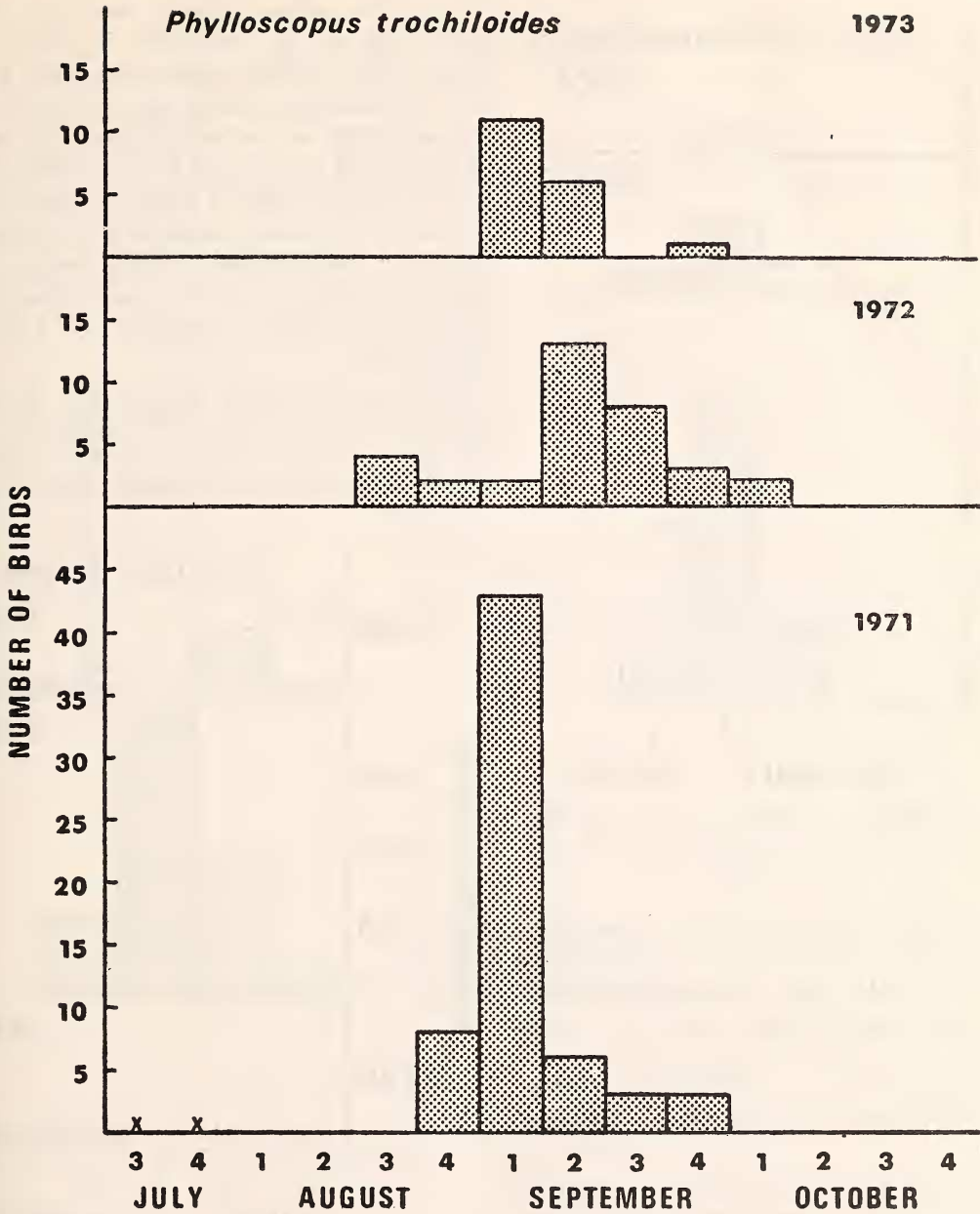


Fig. 3. Numbers of records of Greenish Warblers *Phylloscopus trochiloides* in the Ridge study area per  $\frac{1}{4}$  month.

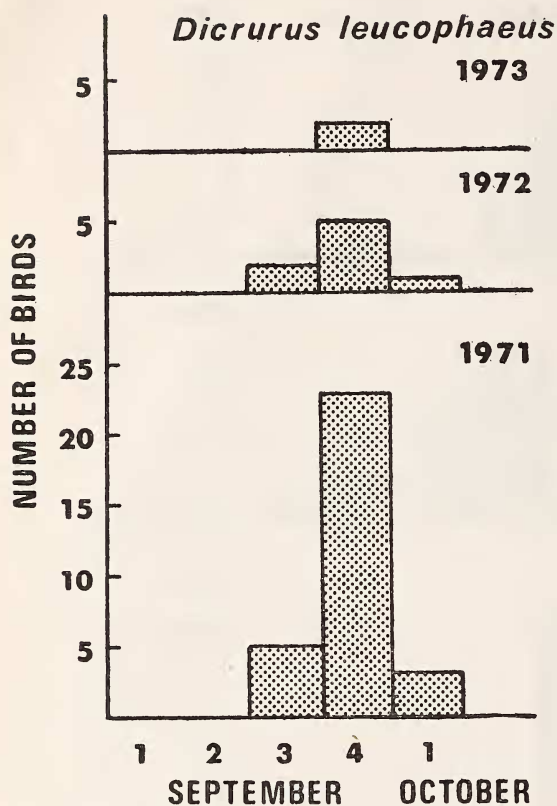


Fig. 4. Numbers of records of Ashy Drongos *Dicrurus leucophaeus* in the Ridge study area per  $\frac{1}{4}$  month.

resident in the riverine belt, but occur in the study area only in winter. The relatively larger number of species which leave the study area during the winter, though resident in moist areas nearby, probably reflects a deterioration in the habitat during the winter as vegetation dries up following the end of the rains in September.

For some species the pattern of seasonal movements in North India may be quite complex. The Green Bee-eater *Merops orientalis* for instance breeds around Delhi during the summer in both dry and moist habitats. Some

birds winter, although many more do so in moist than in dry areas and in spring and autumn large numbers occur on passage. Whether the wintering birds are part of the breeding population or whether different birds move in during the winter, and whether birds leaving dry habitats migrate south or merely shift to moist areas nearby could only be determined by a concentrated ringing programme. Similar questions could be posed concerning *Lanius* spp., *Dicrurus adsimilis* or *Petronia xanthocollis*.

Some species appear quite erratic in their occurrence around Delhi. The nightjars *Caprimulgus* spp. form a good example. *C. indicus* was present in the study area during only one

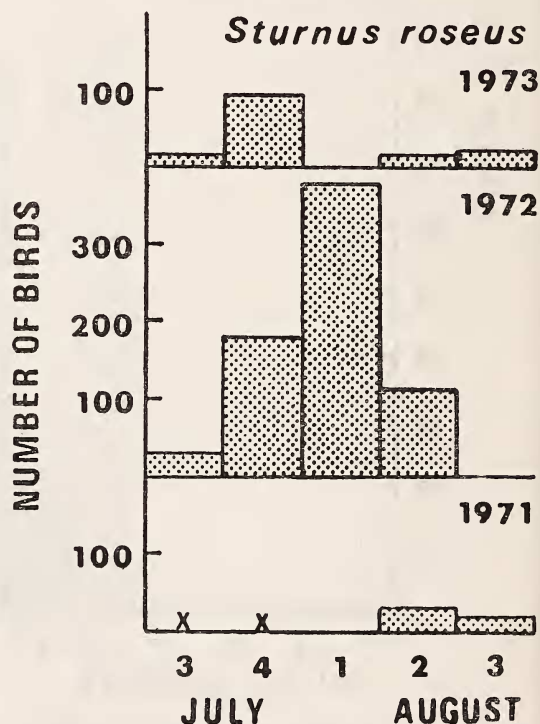


Fig. 5. Numbers of records of Rosy Pastors *Sturnus roseus* in the Ridge study area per  $\frac{1}{4}$  month period.

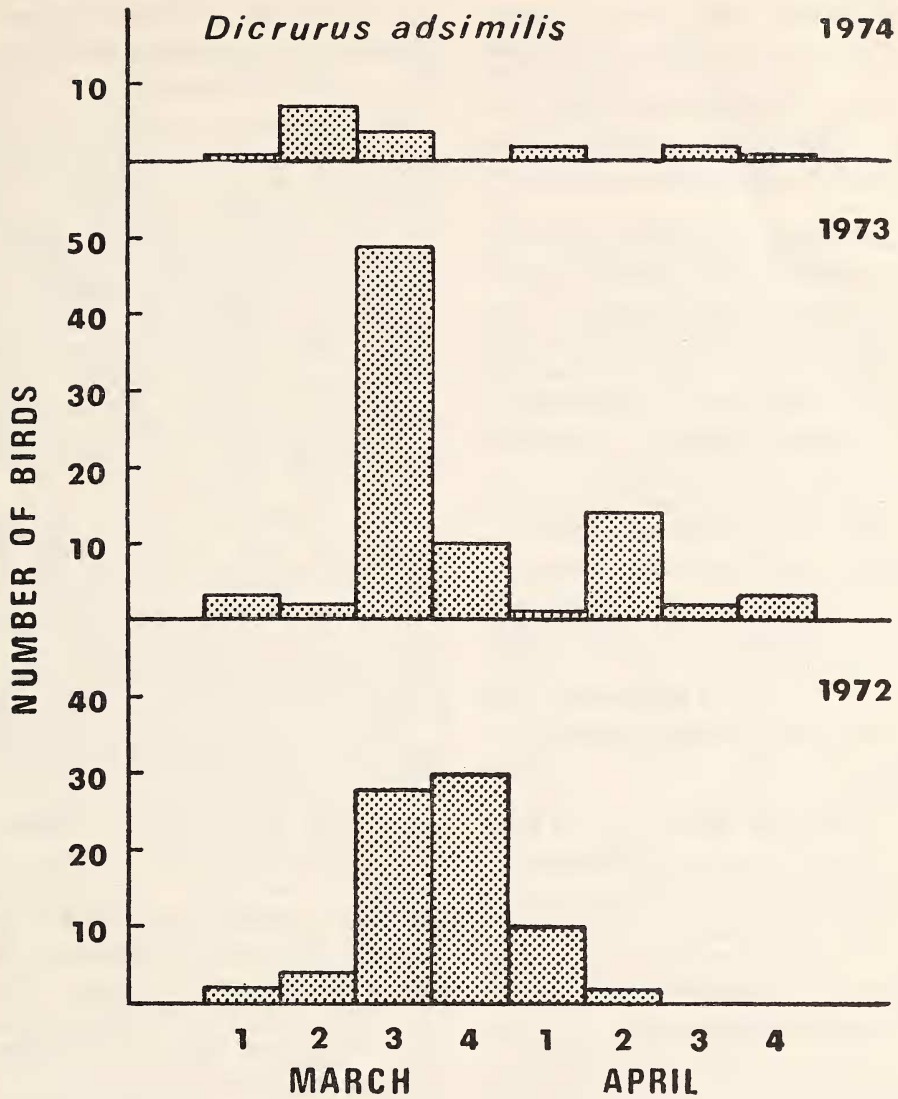


Fig. 6. Numbers of records of Black Drongos *Dicrurus adsimilis* migrating N or NW over the Ridge study area in spring, per  $\frac{1}{4}$  month.

period of four weeks in the autumn of 1973, when several birds were heard singing. *C. macrurus* was heard singing several times in March 1973, while several *C. affinis* were singing in June 1974. All three species were otherwise rare and it would be interesting to know what factors govern the arrival of the different species.

Winter visitors such as *Jynx torquilla*, *Muscicapa parva* and *Sylvia hortensis* remain around Delhi in much larger numbers in some winters than in others. None were seen during the exceptionally severe weather of January-February 1974. *Sylvia curruca* and *Phoenicurus ochruros* appear to fluctuate in numbers less. The fact that several birds of each species were retrapped within a few yards of sites where they had been netted in a previous winter suggests that they return to the same territories in successive seasons. During hard weather in the Punjab Hills, Black Bulbuls *Hypsipetes madagascariensis* made an appearance in the study area, well beyond their normal range, and Black-throated Thrushes *Turdus ruficollis* occurred in large numbers (Gaston 1973).

Changes in the status of birds around Delhi are difficult to assess because of differences in the way that observations have been collected over the years. One species at least, the White-bellied Minivet *Pericrocotus erythropygius*, appears to have declined in the Delhi area. Basil-Edwards (1926) records it as not uncommon in parties of up to six, but Frome (1947) considered it was not at all common and the species was not recorded in the present study. The Jungle Wren-Warbler *Prinia sylvatica*, noted by Hutson as a scarce resident and by the Checklist as uncommon, was also not recorded although the dry habitat of the study area may not be suitable for the species. The Whitecapped Bunting *Emberiza stewarti*,

a common winter visitor to the study area, was recorded in the Check List as very uncommon and this species may have become more numerous around Delhi.

While 167 species were recorded in the study area during the course of the study the maximum number likely to be seen in a day was about 60. Among those seen regularly, however, were several species not easily recorded elsewhere around Delhi; Sirkeer Taccocua *leschenaultii*, Indian Nightjar *Caprimulgus asiaticus*, Redwinged Bush Lark *Mirafra erythroptera* and the Leaf Warblers *Phylloscopus griseolus*, *P. occipitalis* and *P. subviridis*. To have such an area of virtually undisturbed semi-natural woodland so close to a major city is extremely fortunate for people in Delhi interested in birds or other aspects of natural history. It would be useful if part at least of the area could be set aside specifically as a nature reserve because it has great potential as an educational asset. There is some danger at present that the vegetation could degenerate under the twin pressures of grazing and wood-cutting and an excellent facility might be lost.

Systematic list of species included in the 1967 Check List of Delhi Birds as "very uncommon", "accidental", or omitted entirely, and hence previously unrecorded in the Union Territory. The status as recorded in the Check List is given in brackets after the name of the species (Acc. = Accidental, V. Unc. = Very Uncommon, NR = Not recorded).

**Accipiter nisus** (V. Unc.)

Probably largely a spring passage migrant. Apart from singles on Dec. 19, 1971 and Feb. 13, 1972 all other records (6) were in March and April.

**Buteo hemilasius** (Acc.)

One seen soaring over the study area on March 9, 1973.



**Falco subbuteo/severus** (Acc.)

Small, long-winged falcons belonging to one or other of these two species were seen over the study area on Oct. 7, 1971, Nov. 1, 1972 and July 26, 1973.

**Vanellus cinereus** (NR)

One seen beside a small pool on the East side of the river Yamuna, opposite Okhla on Dec. 5, 1972. This bird was also seen by R. Smith and three other experienced ornithologists. According to the HANDBOOK it winters in NE India and is only a rare straggler in the West.

**Streptopelia chinensis** (V. Unc.)

Recorded in the study area on April 15, 1972 (2), May 3, 1972, April 3, 1973 and Jan. 29, 1974.

**Otus scops** (Acc.)

One trapped in a mist net in the study area on Feb. 8, 1973.

**Caprimulgus indicus** (Acc.)

Heard calling regularly in the evenings between Aug. 20-Sept. 17, 1973 in the study area.

**Caprimulgus macrurus** (V. Unc.)

One trapped on Dec. 19, 1972 in the study area and identified by Shahid Ali. The 'chaunk-chaunk' call was heard several times in March 1973.

**C. affinis** (V. Unc.)

Single birds were heard singing in the study area on Sept. 10, 1973 and March 3 and June 5, 1974. Both Frome (1947) and Donahue (1967) record this species in the Delhi area during July-September, but Benthall (1949) recorded large numbers in May. The species may be a regular passage migrant.

**Anthracoceros malabaricus** (Acc.)

Single birds seen in the study area on Feb. 12 and March 28, 1973.

**Dicrurus leucophaeus** (V. Unc.)

A regular passage migrant in small numbers in autumn (see fig. 1), but only two spring

records. One bird trapped in a mist net was sent to the BNHS for confirmation of identification. Most birds appeared to be in immature plumage.

**Coracina novaehollandiae** (Acc.)

One seen near Delhi University on Aug. 9, 1971 and one in the study area on March 28, 1973.

**Pericrocotus ethologus** (NR)

A regular winter visitor to the study area in small numbers (see table 1), usually in parties of up to six, comprising mainly females and immature males. The Check List included the very similar *P. brevirostris*, but according to the HANDBOOK this species is unlikely to occur around Delhi and previous records of *brevirostris* probably refer to *ethologus*.

**Hypsipetes madagascariensis** (NR)

Two were recorded in the study area on Feb. 12, Feb. 24 and March 7, 1972, and three on March 9. For further details see Gaston (1973).

**Muscicapa striata** (NR)

Single birds were recorded in the study area on Sept. 9 and 15, 1972. According to the HANDBOOK this species is a regular passage migrant to the West of Delhi.

**M. superciliaris** (Acc.)

Single birds were recorded in the study area on March 13, 15, 16 and 29, 1973. All these sightings may have involved the same bird. The species is not included in the 1967 Check List but it is listed in a cyclostyled addendum.

**M. rubeculoides** (NR)

One female or immature trapped on Oct. 22, 1971 and sent to BNHS. Identification per A.S. Cheeke.

**Prinia flaviventris** (NR)

Two birds were seen carrying nest material on the edge of a *Typha* marsh near milepost one on the canal road south of Okhla on March 26, 1973. On May 12, 1973 at least

four birds were present in the same area and on March 29, 1974 two were seen. The HANDBOOK shows the distribution of the western race, *sindiana*, extending as far east as Ambala, Punjab and the Delhi birds must almost certainly be of that race.

***Sylvia communis* (NR)**

Single birds were trapped in the study area on Sept. 14, 1971 and Sept. 7, 1972. A regular passage migrant to the west of Delhi (HANDBOOK).

***Sylvia hortensis* (V. Unc.)**

Regular passage migrant and winter visitor to the study area in small numbers, usually seen in open woodland.

***Phylloscopus tytleri* (NR)**

One observed at close range feeding in the lower branches of *Prosopis* woodland in the study area on Aug. 23, 1973. Due to the difficulty of identifying this species in the field it can only be considered 'probable'.

***P. affinis* (V. Unc.)**

Single birds seen in the study area on Oct. 21 and 23, 1971 and Oct. 8, 1972.

***P. pulcher* (NR)**

Single birds seen feeding in dense woodland canopy in the study area on Sept. 23, 1971 and Oct. 25, 1972.

***P. magnirostris* (NR)**

Single birds seen feeding in the woodland canopy in the study area on Sept. 1, 1971 and Sept. 25, 1972. The first bird was trapped and examined in the hand.

***P. occipitalis* (V. Unc.)**

A regular passage migrant during July-October in the study area, with up to 36 being counted in one week in September 1971. For details of passage see fig. 1. In spring single birds were seen on March 30 and April 16, 1972.

***Erythropgia galactotes* (NR)**

One seen on Aug. 3 and 21, 1972 in the

study area. A regular passage migrant further west (HANDBOOK).

***Oenathe isabellina* (Acc.)**

Recorded on several occasions in winter on ploughed land around Delhi.

***Monticola cinclorhynchus* (V. Unc.)**

One female seen in dense woodland in the study area on April 17, 1974.

***Zoothera citrina* (V. Unc.)**

One bird seen in dense woodland in the study area on Oct. 16 and 28, Nov. 10 and Dec. 1, 1971.

***Turdus unicolor* (V. Unc.)**

One in woodland in the study area on Nov. 24, 1971.

***Tichodroma muraria* (V. Unc.)**

One creeping on the walls of Humayun's tomb, Oct. 18, 1971.

***Dicaeum agile/erythrorhynchus* (V. Unc.)**

Flowerpeckers of one of these two species were seen in *Prosopis* woodland in the study area on five occasions.

***Lonchura malacca* (Acc.)**

Six were seen in a mixed flock with Bayas *Ploceus philippinus* and Spotted Munias *Lonchura punctulata* among scrub in the study area on July 24, 1972. Many of these birds are sold in the bird markets in Old Delhi and these could have been escapes.

***Emberiza stewarti* (V. Unc.)**

A numerous winter visitor to the study area between October and May. Flocks of up to 20 were often present in scrub and open woodland. The status accorded to the species in the check list is puzzling and it may have become more abundant recently.

***E. buchanani* (V. Unc.)**

A not uncommon spring passage migrant, up to six being seen in rocky, scrub-covered parts of the study area. One autumn record on Oct. 21, 1971.

BIRDS ON THE NEW DELHI RIDGE

TABLE 1

SEASONAL OCCURRENCE OF SPECIES ON THE NEW DELHI RIDGE

Months	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Total	Status
Weeks of observations	5	12	13	12	4	1	5	12	14	9	8	11	106	code
<i>Ardeola grayii</i>	x	-	x	-	-	xxx	-	x	-	x	-	x	9	O
<i>Bubulcus ibis</i>	-	-	-	-	-	xxx	xx	xxx	xxx	x	-	-	30	V
<i>Elanus caeruleus</i>	xxx	xx	xx	x	-	-	x	x	x	x	xx	xx	52	W
<i>Pernis ptilorhynchus</i>	-	-	x	x	-	-	x	-	-	-	x	x	9	O
<i>Accipiter nisus</i>	-	x	x	x	-	-	-	-	-	-	-	x	9	Ps
<i>Buteo rufinus</i>	-	-	x	x	-	-	-	-	-	-	-	-	3	Ps
<i>Butastur teesa</i>	-	-	xx	xx	x	-	xxx	xxx	xxx	xx	-	x	55	S
<i>Aquila rapax</i>	x	x	x	x	-	-	-	-	x	-	-	-	11	W
<i>A. clanga</i>	-	-	x	-	-	-	-	-	-	-	-	-	2	O
<i>Torgos calvus</i>	-	-	x	-	-	-	x	-	-	x	-	x	5	O
<i>Circus cyaneus</i>	-	x	x	-	-	-	-	-	-	-	-	-	2	W
<i>C. pyrrargus</i>	-	-	-	-	-	-	-	-	-	-	-	x	2	W
<i>C. aeruginosus</i>	-	-	x	x	-	-	-	-	-	-	-	-	2	Ps
<i>Spilornis cheela</i>	-	x	xx	xx	x	-	xx	x	x	xx	xx	x	47	R
<i>Falco peregrinus</i>	-	-	-	-	-	-	x	-	x	-	-	-	2	O
<i>F. subbuteo/severus</i>	-	-	-	-	-	-	x	-	-	x	x	-	4	Pa
<i>F. tinnunculus</i>	x	x	x	x	x	-	-	-	-	-	x	-	12	W
<i>Vanellus indicus</i>	-	x	xxx	xx	xxx	xxx	xxx	xx	xx	xx	x	x	71	S
<i>Tringa ochropus</i>	-	x	xx	x	-	-	-	x	xx	xx	xx	x	35	P
<i>T. glareola</i>	-	-	x	-	-	-	-	-	x	-	-	-	5	P
<i>Burhinus oedicephalus</i>	x	x	x	x	xx	xxx	xx	x	xx	xx	x	x	48	R
<i>Treron phoenicoptera</i>	-	-	x	x	x	xxx	-	-	-	-	-	-	7	S
<i>Streptopelia orientalis</i>	-	-	-	x	-	-	-	-	-	x	x	-	7	P
<i>S. tranquebarica</i>	-	-	x	xx	xxx	xxx	xx	x	x	-	-	-	24	S
<i>S. chinensis</i>	x	-	-	x	x	-	-	-	-	-	x	-	5	O
<i>Sittacula eupatoria</i>	xx	x	x	-	x	xxx	-	-	x	x	xx	xx	23	R
<i>P. cyanocephala</i>	xxx	xx	xx	xx	xx	xxx	xx	xx	xx	x	xx	xx	75	R
<i>Clamator jacobinus</i>	-	-	-	-	-	xxx	xxx	xxx	xx	-	-	-	30	V
<i>Cuculus varius</i>	-	-	x	x	-	xxx	xx	xx	xx	xx	x	-	38	V
<i>C. canorus</i>	-	-	-	x	-	-	-	x	x	-	-	-	6	P
<i>Eudynamis scolopacea</i>	-	x	x	xx	xx	xxx	xx	xx	xx	xx	x	-	53	S
<i>Taccocua leschenaultii</i>	x	x	xx	xx	xx	xxx	xx	xx	xx	xxx	xxx	xx	66	R
<i>Centropus sinensis</i>	xx	xx	xxx	xxx	xxx	xxx	xx	xx	xxx	xx	x	xx	83	R
<i>Otus bakkamoena</i>	-	x	-	x	-	-	-	-	-	-	-	-	2	O
<i>Bubo coromandus</i>	-	x	-	-	-	-	-	-	-	-	x	-	2	O
<i>Athene brama</i>	x	x	x	-	-	-	-	-	x	-	-	x	10	R?
<i>Caprimulgus indicus</i>	-	-	-	-	-	-	-	x	x	-	-	-	5	V
<i>C. asiaticus</i>	-	-	-	-	-	-	xx	x	xx	xx	-	x	17	V
<i>C. affinis</i>	-	-	x	-	-	xxx	-	-	x	-	-	-	3	O
<i>Apus affinis</i>	-	x	xx	xx	xx	xxx	xxx	xx	xx	x	x	x	46	S
<i>Alcedo atthis</i>	-	-	-	-	-	-	xx	-	x	x	-	-	6	V
<i>Halcyon smyrnensis</i>	-	x	xx	xx	xxx	xxx	xxx	xx	xx	x	xx	x	50	S
<i>Merops superciliosus/persicus</i>	-	-	-	x	-	xxx	-	-	xx	xx	-	-	21	P
<i>M. orientalis</i>	xx	x	xxx	xx	xxx	xxx	xxx	xx	xxx	xx	xx	xx	86	R/P
<i>Coracias benghalensis</i>	-	-	x	x	x	-	-	x	xx	x	-	-	24	S/P
<i>Upupa epops</i>	-	xx	xx	xx	xx	xxx	xxx	xxx	xxx	xx	xx	xx	67	R/P
<i>Tockus birostris</i>	-	-	-	-	-	-	x	x	x	-	-	-	6	V
<i>Anthraceroceros malabaricus</i>	-	x	x	-	-	-	-	-	-	-	-	-	2	O
<i>Megalaima zeylanica</i>	x	-	x	xx	xx	-	xx	xx	x	x	x	-	34	S
<i>M. haemacephala</i>	-	-	x	x	xx	xxx	xx	x	x	-	x	x	24	S
<i>Jynx torquilla</i>	xx	x	x	xx	x	-	-	-	x	x	x	x	28	W
<i>Mirafra erythroptera</i>	x	x	xx	xxx	xxx	xxx	xx	xx	xx	xx	xx	x	61	R/S
<i>Hirundo rustica</i>	-	-	x	x	-	-	xxx	xx	xx	x	x	x	38	P
<i>Lanius excubitor</i>	x	-	x	-	-	-	-	-	-	x	xx	xx	16	W

Months	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Total	Status
Weeks of observations	5	12	13	12	4	1	5	12	14	9	8	11	106	code
<i>L. vittatus</i>	xx	x	xxx	xxx	xxx	xxx	xxx	xx	xxx	xx	xx	xx	86	R/S
<i>L. collurio</i>	-	x	x	-	-	-	-	-	x	-	x	x	6	W
<i>Oriolus oriolus</i>	-	-	-	x	xx	-	x	x	-	-	-	-	13	S
<i>Dicrurus adsimilis</i>	-	x	xx	xx	xx	xxx	xxx	xxx	xxx	xx	-	x	62	S
<i>D. leucophaeus</i>	-	-	x	x	-	-	-	-	x	x	x	-	13	P
<i>Sturnus pagodarum</i>	x	x	xx	xxx	xxx	xxx	xxx	xxx	xx	xx	x	x	71	R/S
<i>S. roseus</i>	-	-	x	x	x	-	xx	xx	x	-	-	-	22	P
<i>S. vulgaris</i>	-	x	x	x	-	-	-	-	x	x	x	x	16	W/P
<i>S. contra</i>	-	x	x	x	x	xxx	x	x	x	x	xx	x	19	R
<i>Corvus macrorhynchos</i>	-	x	-	x	-	-	x	x	x	x	x	x	13	O
<i>Pericrocotus ethologus</i>	xx	x	x	-	-	-	-	-	-	-	x	x	22	W
<i>Hypsipetes madagascariensis</i>	-	x	x	-	-	-	-	-	-	-	-	-	3	W
<i>Muscicapa striata</i>	-	-	-	-	-	-	-	-	x	-	-	-	2	P
<i>M. parva</i>	xx	x	xx	xx	-	-	-	-	x	xx	xx	x	39	W/P
<i>M. superciliaris</i>	-	-	x	-	-	-	-	-	-	-	-	-	2	Ps
<i>M. thalassina</i>	-	-	x	-	-	-	-	-	-	-	x	-	5	P
<i>Culicicapa ceylonensis</i>	-	-	x	-	-	-	-	-	-	x	-	-	4	P
<i>Rhipidura aureola</i>	-	-	xx	-	-	-	-	-	-	x	-	-	8	P
<i>Terpsiphone paradisi</i>	-	-	-	x	x	-	-	x	x	x	-	-	15	P
<i>Prinia subflava</i>	x	x	x	x	-	-	-	x	x	xx	xx	x	34	R
<i>Acrocephalus stentoreus</i>	-	-	-	x	-	-	-	-	x	-	-	-	2	P
<i>Acrocephalus dumetorum</i>	-	-	-	xx	xx	-	x	xx	xxx	xx	-	-	44	P
<i>A. agricola</i>	-	-	-	x	-	-	-	-	-	x	-	-	2	P
<i>Hippolais caligata</i>	-	-	x	xx	x	-	-	x	-	xx	-	-	17	P
<i>Sylvia hortensis</i>	x	x	x	-	-	-	-	x	x	x	xx	x	26	W/P
<i>S. communis</i>	-	-	-	-	-	-	-	-	x	-	-	-	2	Pa
<i>S. curruca</i>	xx	xxx	xxx	xxx	xxx	-	-	-	xx	xxx	xx	xxx	85	W/P
<i>Phylloscopus collybita</i>	xx	xx	xx	xx	x	-	-	x	-	xx	xx	xx	53	W/P
<i>P. neglectus</i>	-	-	x	-	-	-	-	-	-	x	x	-	4	-
<i>P. affinis</i>	-	-	-	-	-	-	-	-	-	x	-	-	2	Pa
<i>P. griseolus</i>	xx	x	xx	xx	-	-	-	-	xx	xx	x	x	55	W/P
<i>P. pulcher</i>	-	-	-	-	-	-	-	-	x	x	-	-	2	Pa
<i>P. inornatus</i>	xx	xx	xx	x	-	-	-	-	x	xx	xx	xxx	48	W/P
<i>P. subviridis</i>	xxx	xx	xx	-	-	-	-	-	-	-	-	xx	30	W
<i>P. magnirostris</i>	-	-	-	-	-	-	-	-	x	-	-	-	2	Pa
<i>P. trochiloides</i>	-	-	x	x	-	-	-	x	xx	x	-	-	25	P
<i>P. t. nitidus</i>	-	-	x	x	-	-	-	-	x	-	-	-	6	P
<i>P. occipitalis</i>	-	-	-	x	-	-	x	xx	xxx	x	-	-	25	Pa
<i>Erythropygia galactotes</i>	-	x	-	-	-	-	x	x	-	-	-	-	2	Pa
<i>Erithacus svecicus</i>	-	x	x	x	-	-	-	-	-	x	x	x	8	W/P
<i>Copsychus saularis</i>	-	x	x	xx	-	-	x	x	xx	xx	x	x	31	R?
<i>Phoenicurus ochruros</i>	xx	xx	xxx	xxx	xxx	-	-	-	xx	xxx	xx	xxx	81	W
<i>Saxicola torquata</i>	-	x	x	x	-	-	-	-	x	x	-	-	11	P
<i>S. caprata</i>	-	x	x	-	-	-	x	-	x	-	-	-	9	P
<i>Zoothera citrina</i>	-	-	-	-	-	-	-	-	-	x	x	x	4	W
<i>Turdus ruficollis</i>	xx	xx	xx	x	-	-	-	-	-	-	x	x	29	W
<i>Sitta castanea</i>	-	-	-	-	-	-	-	-	x	-	-	x	3	O
<i>Anthus hodgsoni</i>	-	x	x	x	-	-	-	-	x	x	x	-	8	P
<i>A. trivialis</i>	-	-	x	x	-	-	-	-	x	x	-	-	6	P
<i>A. similis</i>	x	x	x	-	-	-	-	-	x	x	x	x	9	W/P
<i>Motacilla flava</i>	-	-	-	-	-	-	-	-	x	x	-	-	6	Pa
<i>M. caspica</i>	xx	xx	x	x	-	-	-	x	xx	xxx	xx	xx	54	W/P
<i>M. alba</i>	-	-	x	-	-	-	x	-	x	x	x	-	5	P
<i>Dicaeum agile/</i> <i>erythrorhynchos</i>	-	-	x	-	-	-	-	-	-	-	-	x	5	W
<i>Zosterops palpebrosa</i>	-	x	xx	x	x	-	xx	xx	xx	xxx	x	x	53	S
<i>Passer domesticus</i>	-	x	xx	xx	xx	xxx	xxx	xx	x	x	x	x	44	S
<i>Petronia xanthocollis</i>	-	-	xxx	xxx	xxx	xxx	xxx	xxx	xxx	x	-	-	62	S



# BIRDS ON THE NEW DELHI RIDGE

Months	J.	F.	M.	A.	M.	J.	J.	A.	S.	O.	N.	D.	Total	Status
Weeks of observations	5	12	13	12	4	1	5	12	14	9	8	11	106	code
<i>Ploceus philippinus</i>		x	-	x	x	-	-	xx	x	x	-	-	12	S
<i>Lonchura punctulata</i>		-	-	-	x	-	-	x	x	-	-	-	3	O
<i>Carpodacus erythrinus</i>	xxx	x	x	x	x	-	-	-	-	-	x	xx	19	W
<i>Emberiza stewarti</i>	xx	xx	xx	xx	x	-	-	-	-	x	xx	xx	49	W/P
<i>E. buchanani</i>		-	x	x	x	-	-	-	-	x	-	-	6	P

Species recorded in every week or in only one week are excluded. xxx; recorded in every week in which observations were made, xx; recorded in half or more of the weeks, x; recorded in less than half of the weeks, -; not recorded in that month. For status code see table 4.

TABLE 2

SPECIES RECORDED IN THE STUDY AREA DURING ONLY ONE WEEK, WITH THE MONTH OF OCCURRENCE

*Buteo hemilasius* (March) *Aquila heliaca* (April) *Falco biarmicus* (February)  
*Falco chicquera* (September) *Gallinula chloropus* (April)  
*Otus scops* (February) *Caprimulgus macrurus* (December) *Ceryle rudis* (May)  
*Hirundo flavicola* (December) *Acridotheres ginginianus* (November)  
*Coracina novaehollandiae* (March) *Aegithina nigrolutea* (June)  
*Muscicapa rubeculoides* (September) *Phylloscopus tytleri* (August)  
*Monticola cinclorhynchus* (April) *Turdus unicolor* (November)  
*Motacilla citreola* (November) *Lonchura malacca* (July) *Melophus lathami* (April)

TABLE 3

SPECIES RECORDED IN THE STUDY AREA DURING EVERY WEEK OF THE STUDY

<i>Milvus migrans</i>	<i>Lanius schach</i>	<i>Turdoides striatus</i>
<i>Accipiter badius</i>	<i>Acridotheres tristis</i>	<i>Prinia hodgsonii</i>
<i>Gyps bengalensis</i>	<i>Dendrocitta vagabunda</i>	<i>P. buchanani</i>
<i>Neophron percnopterus</i>	<i>Corvus splendens</i>	<i>P. socialis</i>
<i>Francolinus pondicerianus</i>	<i>Tephrodornis pondicerianus</i>	<i>Orthotomus sutorius</i>
<i>Pavo cristatus</i>	<i>Pericrocotus cinnamomeus</i>	<i>Saxicoloides fulicata</i>
<i>Columba livia</i>	<i>Pycnonotus jocosus</i>	<i>Nectarinia asiatica</i>
<i>Streptopelia decaocto</i>	<i>P. leucogenys</i>	<i>Lonchura malabarica</i>
<i>S. senegalensis</i>	<i>P. cafer</i>	
<i>Psittacula krameri</i>	<i>Chrysomma sinensis</i>	
<i>Dinopium benghalense</i>	<i>Turdoides caudatus</i>	
<i>Dendrocopos mahrattensis</i>	<i>T. malcolmi</i>	

TABLE 4

## SUMMARY OF SEASONAL OCCURRENCE OF SPECIES ON THE RIDGE STUDY AREA

Status	Code in table 1	Number of spp.		Percentage
Resident	R	42	}	28
Resident and Passage migrant	R/P	2		
Resident and Summer visitor	R/S	3		
Winter visitor	W	16	}	16
Winter and Passage migrant	W/P	11		
Summer visitor	S	15	}	14
Summer and Passage migrant	S/P	1		
Rains visitor	V	7		
Passage migrant	P	26	}	23
Passage, mainly autumn	Pa	8		
Passage, mainly spring	Ps	4		
Occasional, non-seasonal	O	32		19
		167		

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